MONETARY POLICY DURING COUNTDOWN

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1. Introduction

From the second half of 1999 onward, the economic mechanism in Slovenia underwent three major structural changes that profoundly affected, among other things, the nature of inflation and the design of monetary policy to deal with inflation.

In mid-1999, value added tax and excises were introduced. These two new forms of taxation severely altered relative prices. The relative rates of sales tax up to 1999 were substantially different from those of value added tax. Effects on prices were even greater because the previous sales tax was cascading, while value added tax is not. These differences were great even among different categories of goods, let alone between goods and services.

From 1999 on, there was also a marked change in the management of public sector finances. Two key changes occurred. On the expenditure side, wage pressures took over the leading role from pressures of transfers. Wage increases altered the composition of current expenditure of general government by squeezing material expenditures (in healthcare and education, for example). As a result, the quality of these services began to suffer, increasing the pressure on the corresponding part of the budget for a rise in the material component of current spending and hence, ceteris paribus, for a rise in a total general government spending.

Major structural changes within public revenues also occurred. Chronic problems with cyclically squeezed tax revenues began to be systematically resolved by frequent and substantial rises in domestic taxes on goods and services and by large increases in directly or indirectly regulated prices. The systematic use of excises as tactical taxes became particularly important. To offset the pronounced decline in tax revenues caused by the change in the structure of domestic demand[2], the government could, for example, alter tax rates in the course of the year of its own accord.

In mid-1999, under Slovenia's commitment to remove capital controls as part of the EU accession process, all remaining restrictions on financial flows with the rest of the world were abolished. Capital restrictions had been important for sterilised

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[2] Household consumption as a proportion of GDP fell by more than three percentage points after 1999, and investment by a similar amount.

foreign exchange interventions (and thus for the independent path of money and the exchange rate) in the second half of the 1990s. Accordingly, the character of monetary policy had to be changed in the run-up to the millennium as a result of the removal of capital restrictions.

The restructuring of the tax system in 1999, the changes in the management of public finances and major revisions to (indirectly and directly) regulated prices accelerated the growth in relative prices of non-tradable goods and services, although the level of these relative prices had already been far in excess of corresponding relative prices in the most advanced transition economies, as well as far in excess of the level corresponding to the level of development of the Slovenian economy.

The question arises to what extent these structural changes influenced the design of monetary policy after 1999, as well as whether the design of monetary policy was adequately adapted to the consequences of the supply shocks generated by these structural changes. Because of the closed and short horizon of the new monetary policy (extending up to the substantial curtailment of flexibility that will occur upon entry to ERM2), both nominal and real economic convergence are heavily dependent on the adequacy of monetary policy.

This paper charts the course and magnitude of structural changes in the economy brought about since 1999 by tax reforms, the systematic increasing of excises, and changes in indirectly and directly regulated prices. It attempts to establish to what extent the change in the design of monetary policy is appropriate to these structural changes and the altered external environment. It also touches on one possible alternative monetary policy.

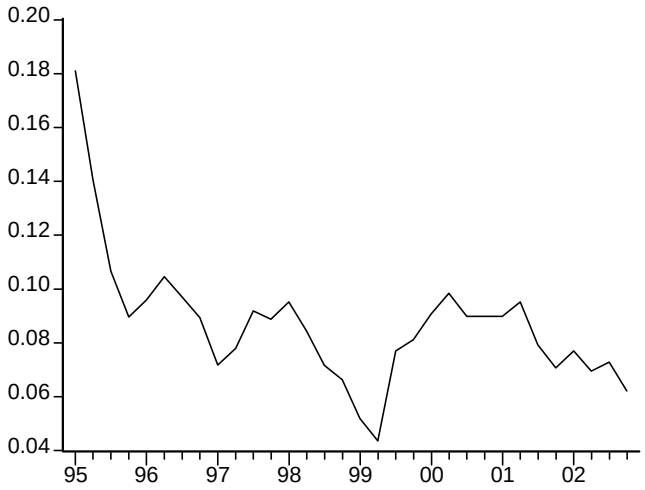
2. Relative price shocks

Changes in taxation and regulated prices. Changes in taxation (the introduction of value added tax and excises), intensive changes (increases) in excise rates and a revision to value added tax rates were made to offset the deterioration in the fiscal position[4] due to rises in public sector pay and declining tax revenue caused by cyclical contraction in the relative size of household spending and investment expenditure (as a proportion of GDP). We will show that these changes in taxation and rapid increases in (indirectly and directly) regulated prices or prices of producers with significant market power represented a series of very large (real) supply shocks from the second half of 1999 onward. Those shocks accelerated inflation (as Figure 1 illustrates) and, more importantly, upset the stabilisation of relative prices that had previously been observed.

Establishing the size and intensity of the relative price shocks is important in analysing aggregate price growth. In a period of major supply shocks (relative price changes) analysis of aggregate price movements alone tells us much less about the

[4] The proportion of excises in the retail prices of certain petroleum derivatives, for example, has virtually doubled since 1999.

Figure 1
Inflation



Note: yearly (quarter on quarter) growth rates.

nature of inflation, since it does not allow us to reveal the consequences of the establishment of a new equilibrium in relative prices, particularly if individual large deviations in (aggregate) growth are stripped out of the analysis as outliers. Empirical analyses in other countries show a fairly persistent link between the variability of relative prices and inflation, although the direction of causality (in cases where exogenous shocks are not involved) is open to question.

Recent studies have shown that account must be taken not only of the second but also of the third moments of the distribution of the growth rate of relative prices, i.e. the skewness of the relative price distribution as well as its dispersion. Changes in relative prices (or to be more precise, "desired" price changes) may be distributed symmetrically or asymmetrically; in the former case, increased variability does not entail a change (increase) in price growth. The key factor in changes in aggregate price growth is the degree of asymmetry of the distribution of changes in relative prices (or rather in "desired" changes in prices). Once the skewness of the relative price change distribution is taken into account, the empirical relationship between the variability of relative price changes and aggregate inflation becomes much stronger, and its theoretical foundation is also clearer. [5]

[5] On the variability of relative prices and inflation see e.g. Fischer (1981). For convincing evidence of the effects on inflation of asymmetry in the distribution of relative price changes (under exogenous shocks), see Ball and Mankiw (1995).

The effect of a skewed distribution of relative price changes on aggregate inflation can be explained, for example, by costs of price adjustment (or uncertainty about the new relative price equilibrium). A skewed distribution of relative price changes thus represents an (aggregate) supply shock that shifts the short-term Phillips curve (and so affects inflation).

The severity of the shock to relative prices from the second half of 1999 onward is illustrated by both the variability and the skewness of the growth in relative prices of the groups of products that make up the retail price basket.

Figure 2 contains two charts. The first shows the variability of the growth in the relative prices of the groups of goods and services that make up the retail price index mentioned above. Variability is defined as the standard deviation of the corresponding annual (month-on-month) growth rates.

For each month the weighted standard deviation of the annual growth rates in prices for the most detailed available disaggregation of the retail price basket (50 items, contained in the SORS Statistical Bulletin)[7] is calculated. The chart shows the values for the final month of each quarter.

The chart confirms that the variability in the growth rates of relative prices among the various product groups has grown very considerably since the middle of 1999. The supply-side shock was stronger than at the end of 1995, when the first major change in regulated prices was introduced. In the middle of 2000, the degree of variability was almost four times as great as on the eve of the introduction of value added tax (when inflation dropped under 5%)[8]. Only at the end of 2001 did the variability of relative prices fall back to the average level for the period 1996-1999, although it was still markedly higher than at the beginning of 1999, that is, before inflation fell below 5%.

The pattern in the chart in the period prior to 1999/II also illustrates the magnitude and duration of the variability of relative prices that was necessary for the lowering of aggregate price growth. The variability in the growth of relative prices underwent a sustained and large fall from the end of 1995 up to 1999, when a marked decrease in year-on-year price growth occurred in mid-year.

The second chart in the same figure shows the corresponding relative variability of the growth rates in relative prices of goods and services in the retail price basket (weighted standard deviations divided by the relevant weighted average annual growth in retail prices for the month concerned). The chart shows, in a very

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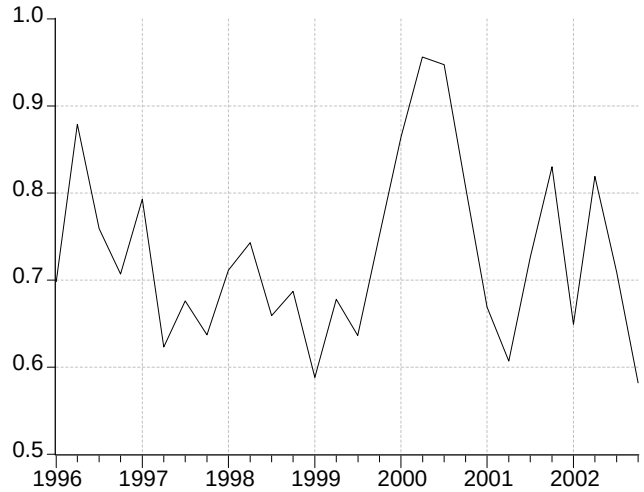
[7] Weights from the basket of products from the end of 2002 were used.

[8] It may be noted, for example, that at the time of the first oil price shock the variability of relative prices in the US increased around eightfold and was accompanied by a doubling (!) of inflation (see e.g. Debelle and Lamont (1996) or Fischer (1981)). Interestingly, the increase in variability in Slovenia, which was half as great, was associated with roughly half as great a (percentage) increase in inflation.

Figure 2
Standard deviation of relative price growth rates

Note: Weighted standard deviation is calculated from relative price growth rates of different product categories contained in the basket of the retail price index

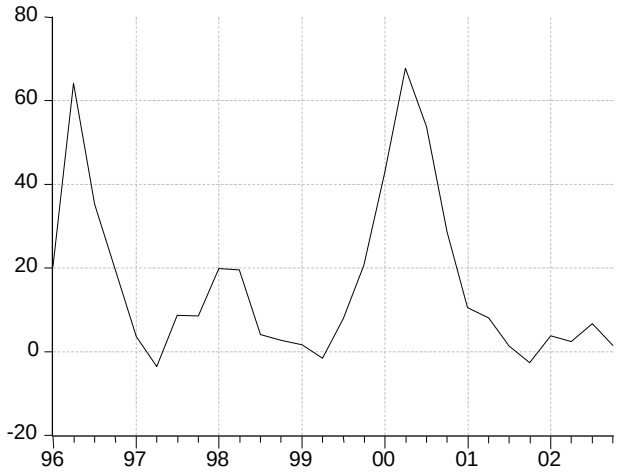
Relative standard deviation of relative price growth rates



Note: Weighted standard deviation of relative price growth rates divided by weighted average price growth rate (aggregate price growth rate).
Source: Statistical Office of the Republic of Slovenia (SORS) Monthly Bulletin; own calculations.

simple fashion, that the increase in price growth in this period arose from shocks to the prices of individual (disaggregated) product categories and not from an across-the-board increase in inflation, as would be the case if, for example, the rise in inflation had been the result of a single factor (for example, exchange rate dynamics) that had increased inflation expectations, that is in the case of a nominal shock. In the latter case relative variability should be substantially unchanged.

Figure 3
Asymmetry of relative price changes



Source: SORS Monthly Bulletin; own calculations.
Note: Asymmetry is defined as in Ball and Mankiw (1995).

Figure 3 illustrates the asymmetry of the distribution of relative price growth rates for the same product disaggregation of the retail price basket, again for the period since 1996. An asymmetry index proposed in an analysis of the asymmetry of the relative price growth rates distribution in the United States[9] is calculated and displayed. That analysis showed that asymmetry of the distribution of changes in relative prices constitutes a supply shock that induces a (statistically) significant shift in the short-term Phillips curve (and so affects aggregate inflation). The same analysis also shows that to study only variability in relative price changes (that is, in the case where relative prices changes are symmetrically distributed) can give incorrect signals about future inflation. Figure 3 also confirms both the magnitude of the supply shocks in the period from mid-1999 to the beginning of 2001 and the reduction in the asymmetry of the distribution of relative price changes towards the end of 2002.

[9] The index used is $\int |r|\, r\, h(r)\, dr$, where r is growth rate in relative prices and h (r) is the distribution of the growth rate of relative prices. See Ball and Mankiw (1995).

Table 1
Relative prices of services in Slovenia

Italy	1998/10	82.7
Austria	1998/10	75.0
Poland	1996/10	150.3
Croatia	1996/10	163.7
Hungary	1996/3	159.1

Note: Relative prices of services are calculated per unit of goods prices; relative prices of services in Slovenia are shown as a percentage of relative prices in other economies.
Source: Bole (2003).

Deterioration in relative prices of non-tradables. Not only did the relative price shocks that occurred after 1999 stop the stabilisation of the economy, they also caused the relative prices of non-tradable products to accelerate significantly. The latter are already substantially higher in Slovenia than in the other most advanced economies in transition. Table 1 shows the relative prices of services (in relation to goods prices) in Slovenia compared with some foreign economies. The data are from surveys by the Economic Institute for Diagnosis and Prognosis in Maribor.[10]

It can be seen that relative prices of services in Slovenia were already more than 50% higher than those in Hungary, Croatia and Poland at the end of 1996 (that is, after the first major revisions to certain regulated prices of services, such as rents). Even more significantly, however, prices of services (non-tradable products) in Slovenia in the middle third of the 1990s were already 75% as high as in Austria and 82% as high as in Italy; such a high level significantly exceeds the values implied by the empirical relationship between the level of economic development and the relative price of services (resulting from the Balassa-Samuelson effect)[11]. The most recent survey undertaken by the Maribor Economic Institute, at the end of 2002, as part of its research into relative prices in Slovenia shows that relative prices are now as high as 82% of those in Austria[12]. The excessive level of relative prices of non-tradable products may significantly reduce long-term sustainable economic growth and thus

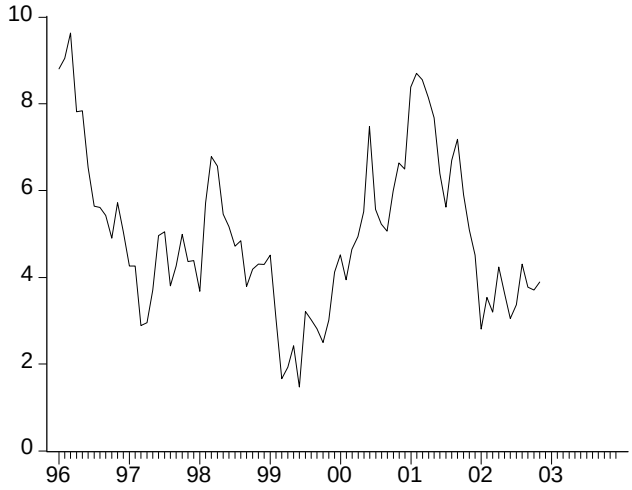
[10] See EIDP working papers 1999/10, 1996/9, 1997/5 and 1999/3, and Bole (2003).

[11] See e.g. Kravis and Lipsey (1983), cit. Bhagwati (1984). Relative prices of services began to outstrip the level appropriate to Slovenia's economic development as early as 1993 (see Bole (1994)).

[12] Maribor Economic Institute internal data, not yet published.

the speed of real convergence following entry to the EU (or to be more precise, following the transition to a significantly less flexible exchange rate regime).

Figure 4
Growth rate of relative prices of services



Note: Relative prices of services are calculated in relation to prices of goods excluding fuel; growth rates are year-on-year.
Source: SORS Monthly Statistical Bulletin; own calculations.

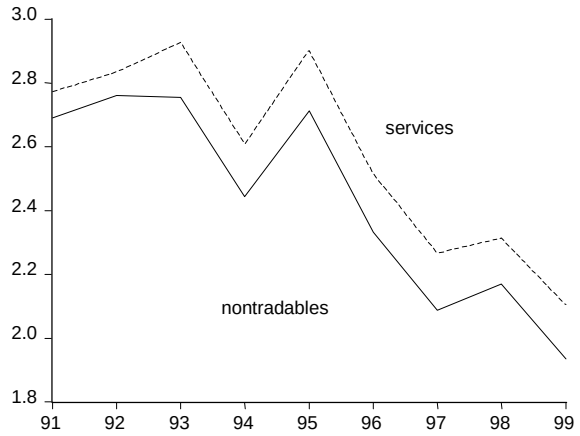
The relative price shocks after 1999, as already mentioned, caused a further strong increase in the relative prices of services (non-tradable products), which is evident in Figure 4. The chart shows the monthly year-on-year percentage rise in the price of services in relation to the price of goods (excluding fuel). Primarily because of substantial rises in excises on liquid fuels, the comparison is made with the price of goods excluding fuel, that is with tradable products whose prices are formed freely and whose producers have little market power[13]. The graph shows clearly that, on the eve of the introduction of value added tax, throughout 2000 and particularly in 2001 (after major revisions to regulated prices of services), the growth in prices of services in relation to prices of tradable products jumped from a low or "normal" 2% per annum to as much as 8% per annum and that at the start of 2003, despite a significant slowing-down in the growth in the relative price of services, it was still around 50% higher than in the "normal" period at the start of 1999.

[13] Fixed weights of goods (excluding fuels) from the retail price basket of December 2002 were again employed in calculating the appropriate price index.

3. Structural change in the economy and the design of monetary policy since 1999

Market structure of the non-tradable sector The market structure of the tradable sector in Slovenia is significantly more competitive than that of the non-tradable sector. There are two main reasons for this: the lower level of development (as measured for example by the share of value added) of the service sector (non-tradable sector) in relation to the tradable sector prior to transition, and fierce foreign competition in the market for tradables (from the very beginning of transition) as against relatively slow growth of competition in the (domestic) market for non-tradables. Thus, in the non-tradable (and to a lesser extent the tradable) sectors during the 1990s, productivity growth tended to widen the markup of prices over costs, while intensifying competition tended to narrow it.

Figure 5
Price-cost margin
Relative price-cost margin (tradable sector = 1)



Source: Bole (2002).

The effects of the difference in market power were amplified by the difference in power of trade unions in the tradable and non-tradable sector, especially in non-market service sectors. In the late 1980s the tradable sector (industry) absorbed the bulk of surplus employment ("employees without work"), while the level of employment in the service sector was relatively small[14]. Consequently, especially during the first (exogenous) phase of transition (to 1995), firms in the tradable sector, under intense competitive pressure, shed workers as part of their restructuring, while employment in the service sector (especially in non-market services, i.e. the public sector) grew. This difference in employment trends affected the relative power of the trade unions.

[14] See e.g. Mencinger (1983) and Mencinger (1989).

A less competitive market structure (or in other words significantly higher market power) at the start of the transition thus enabled firms in the non-tradable (service) sector to increase prices above marginal cost to a significantly greater extent than in the tradable sector during the first period of transition.

Although the market power of firms declined (or competition intensified) faster in the non-tradable (service) sector than in the tradable sector during the 1990s, the price-cost margin in the tradable sector remained considerably narrower than the corresponding price-cost margin in the non-tradable (service) sector even at the end of the decade[16].

As an illustration of the change in the relative price-cost margin in the non-tradable (or service) sector in relation to the tradable sector, Figure 5 shows the price-cost margin for the service and non-tradable sector, calculated as a ratio to the price-cost margin in the tradable sector, for the period up to the structural changes in the economy analysed here (i.e. up to 1999). The two series confirm that the market power of producers in the non-tradable sector relative to their counterparts in the tradable sector fell markedly during the 1990s (by about 28%), but was still almost twice as high as that of producers of tradables in 1999. Only after completion of the first phase of transition, i.e. from 1995 onward, did the competitiveness of the market structure in the non-tradable sector really begin to increase. During the second half of the 1990s the degree of competitiveness of the market structure within the non-tradable (service) sector relative to the tradable sector increased on average by a little more than 7% per annum. Clearly, with each year the microeconomic market distortions in the non-tradable sector are declining strongly; given a continuation of this trend in the relative competitiveness of the non-tradable sector, the latter can be expected to increase by a further considerable extent (by roughly 15% at least) before Slovenia's anticipated entry to ERM2.

The high degree of market power enjoyed by firms in the non-tradable sector is also confirmed by the very high relative prices of services, shown earlier in Table 1.

Of course, the non-tradable sector includes a group of products (e.g. telecommunications and energy) that are subject to market regulation by the government or whose prices are directly set by it. The producers concerned enjoy not only a large degree of market power but also significant political influence. This is particularly important in view of the fact that the government, facing fiscal difficulties or under lobbying pressure, can directly (or indirectly) increase prices significantly above costs with vastly greater ease than producers themselves.

Distortions in market structure and the design of monetary policy. The difference in market structure between the tradable and non-tradable sector described above has significant consequences for the selection of an appropriate monetary policy. In an economy with sectors of such differing market structure, specifically a tradable sector

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[16] See e.g. Bole (2002).

with a competitive market structure on one hand and a non-tradable sector in which producers have considerable market power on the other, an optimal monetary policy should in theory address its interventions solely towards stabilising prices in the non-tradable sector![17] Because in an economy with such a pronounced sectoral difference in market structure it is precisely the non-tradable sector that gives rise to economic inefficiency (expressed in higher inflation and/or a wider public sector deficit and/or a larger external imbalance), growth of the exchange rate (induced price growth in the tradable sector) in the context of optimal monetary policy is merely "collateral" damage caused by an otherwise appropriate monetary policy.

While a large exchange rate pass-thorough to tradable sector prices facilitates effective restraint and stabilisation of the latter, it is only a necessary and not a sufficient condition for stabilisation of the economy by means of exchange rate policy (for example by transition to a fixed exchange rate regime). In Slovenia even the first element (assumption) of a sufficient condition for exchange rate anchoring, namely non-segmentation of the labour market (which facilitates the Balassa-Samuelson effect) cannot be confirmed empirically. What is more, the empirical evidence shows that in the 1990s the opposite was true, since, for example, wages in the tradable sector (for corresponding levels of qualification) merely followed wages in the non-tradable sector, rather than dictating their rate of growth[18].

Because of the prevailing nature of market structure discussed above, exchange rate stabilisation of prices is distortionary, since it restrains prices in the tradable sector, but not, or not sufficiently, those in the non-tradable sector, which are a source of instability in the economy due to an inappropriate market structure. A policy of exchange rate stabilisation, then, is ineffective precisely in the sector of prices whose stabilisation is essential for enhancing economic efficiency – that is, in the sector in which the market power of producers and the interference of government are already considerably greater and in which relative prices (in relation to the overall price level) are already excessive (given the level of development of the economy) for long-term sustainable growth. This is especially true in view of the transition to a significantly less flexible exchange rate regime (with a central parity and a narrow band), or to a wholly fixed exchange rate regime, following entry to the EU. Moreover, the question arises as to the extent to which exchange rate stabilisation of prices could even be sustainable, without of course a dramatic increase in external and/or public sector imbalance, if the basic reasons for the difference in market structure were not removed with sufficient speed.

Given the micro-distortions described (in market structure), optimal monetary policy, then, must restrain prices by controlling the fuelling of domestic demand by

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[17] See e.g. Aoki (2001) or Clarida et al (2001). The message of the article by Clarida et al (2001) is unambiguous: "To the extent that there is perfect exchange rate pass through, we find that the central bank should target domestic inflation and allow the exchange rate to float, despite the impact of the resulting exchange rate variability on the CPI." For the authors of the article "domestic inflation" is the growth of prices in the market with a non-competitive structure!

[18] See e.g. Bole (2002).

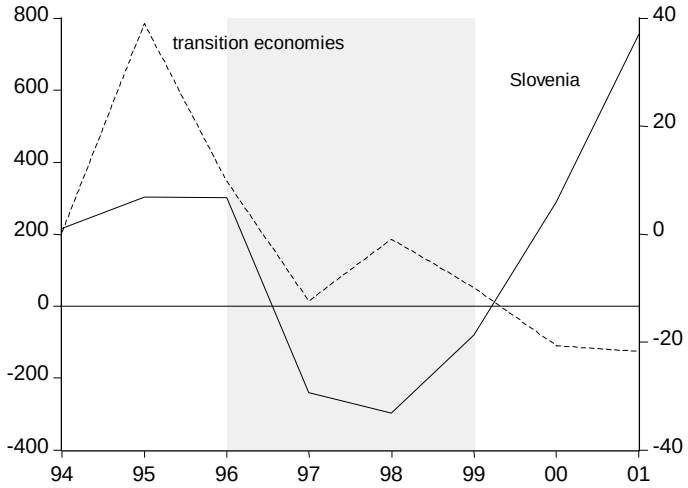
money. Under the downward trend illustrated above, whereby differences of market structure between the tradable and non-tradable sectors decreased in the second half of the 1990s by around 7% per annum , it is evident that each additional year of unaltered (optimal) design of monetary policy will significantly reduce possible distortionary effects of the transition to a significantly less flexible exchange rate regime (such as entry to ERM2).

Abolition of capital restrictions and the operational target of monetary policy. A central bank wishing to influence domestic demand by controlling money can operationally (over a short term of a few months) target the quantity of money (various monetary aggregates) or the real interest rate. In Slovenia the central bank operationally targeted the monetary base up until 1998 but was obliged to alter its operational (short-term) target around the turn of the year 2000 because of a changing environment[19].

Around the end of 1999 and the beginning of 2000 major structural changes occurred which significantly altered the transmission of monetary policy interventions[20]. A key reason for the changes were changes in the management of capital flows that arose at the end of 1998 and in the first half 1999. At that time all major capital restrictions were lifted. In the period from 1995 to 1999, these very capital controls enabled operational targeting of (narrow) money and sterilised foreign exchange intervention, and hence an independent path of the money and the exchange rate.

[19] Only in the last third of the 1990s did the central bank begin to adopt a longer-term orientation (guidelines) in addition to an operational one. Initially, its long-term orientation was set with reference to M3.
[20] See e.g. Bole (2003).

Figure 6
Net financial inflows through the private sector (excluding direct investment)



Note: Data for Slovenia (left-hand axis) are in millions of US dollars, data for economies in transition are in billions of US dollars; the period of capital controls is shaded.
Source: Bole (2002a).

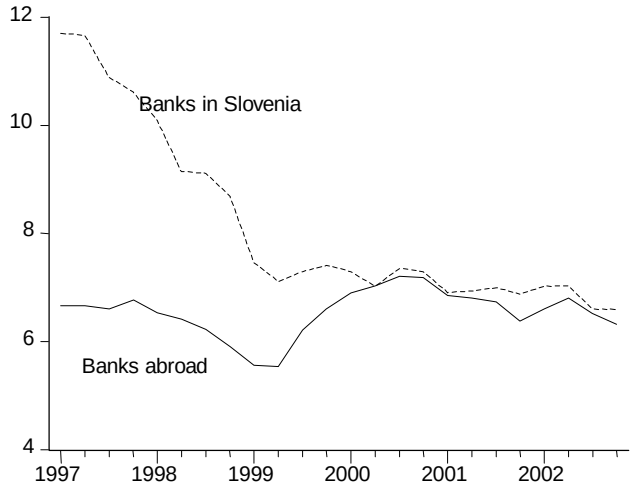
The abolition of capital restrictions powerfully stimulated net financial inflows. Figure 6 shows net financial inflows (excluding direct investment) through the private sector. In order to illustrate possible changes in "push" factors, the chart also shows net financial inflows for all economies in transition. The latter are represented by a broken line and Slovenia by an unbroken line; the period of capital restrictions in Slovenia is shaded. It is evident that net financial inflows have grown strongly since the abolition of capital restrictions[21]. The increasing certainty regarding Slovenia's entry to the EU has further encouraged the growth in inflows. In the last two years, for example, net financial inflows even exceeded 8% of GDP.

Because of increased net financial inflows, monetisation on the retail foreign exchange market has drastically increased the volume and fluctuation of the supply of money, in the period since the first half of 1999 . For this reason the central bank has found it increasingly difficult to control (narrow and base) money in operational periods of one or two quarters in this period. It has managed to keep to the monetary target (while of course leaving financial repression unchanged, i.e. without changing the level of compulsory reserves etc.) only over distinctly longer time horizons than prior to 1999. The size of money supply fluctuations triggered by capital inflows illustrates the exchange of cash held in the currencies replaced by the Euro (at the end of 2001). It alone increased the supply of money, through monetisation on the retail foreign exchange market, by over 30% of narrow money in the space of only two months. The corresponding capital inflows totalled around 800 million Euros, which

[21] Figure taken from Bole (2002a).

is considerably more than the (safe) increase in narrow money (through all supply channels) that would otherwise have occurred over the whole year. It took the central bank more than three quarters in order to sterilise the increase in the money supply of this magnitude.

Figure 7
Interest rates on short-term borrowing



Note: Interest rates for banks in Slovenia are interest rates on foreign exchange loans.

In response to the greatly increased difficulty of operationally targeting (base) money caused by the structural change described, the central bank has switched to operational targeting of the real interest rate since 1999.[22] Because of the large but relatively interest rate-insensitive (!) inflows (e.g. mergers and acquisitions, and other FDI increases), the monitoring of broad money has become less and less meaningful even over longer (non-operational) time horizons, since controlling the supply of broad money (even if only over longer periods) would require a drastic reduction in the supply of money through net monetisation on the retail foreign exchange market, and hence a similarly drastic increase in the deficit in current transactions (to at least 4% or 5% of GDP). In circumstances where individual (relatively interest rate-insensitive) transactions (such as the purchase of Lek or the exchange of foreign currency at the changeover to the Euro) increase the quantity of narrow money by more than 30% in a period of one to two months, the central bank can target even over a longer time horizon (of three to four quarters) only narrow money, especially when such private sector transactions are not easily predicted (as was the case, for example, with the exchange of foreign currency). Because of the large net financial inflows from abroad, the central bank can now, therefore, only influence financial deepening by maintaining the quantity of narrow money over the longer term within a

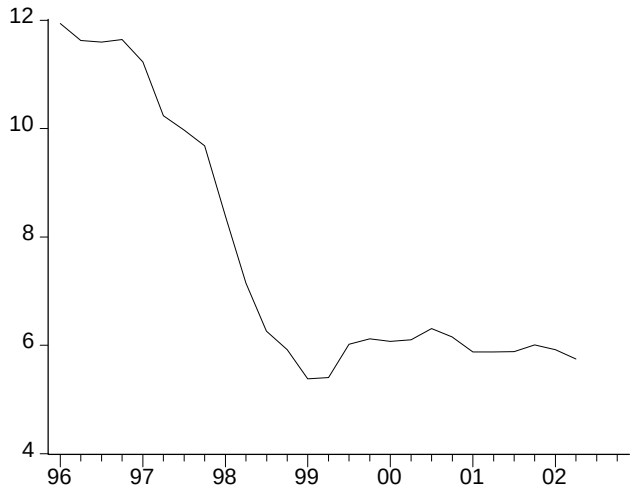
[22] This step, made by Romer theoretically, in practice had to be made by the central bank due to the extremely large and fluctuating supply of money generated by the monetisation of net financial inflows from abroad (see Romer (2001) and Bole (2003)).

zone compatible with targets for the operationally controlled real interest rate. During the period of capital restrictions (up to the beginning of 1999) the central bank was able to operationally target narrow (base) money and adjust the monetary stance (making it more or less restrictive or expansionary) by modifying the quantity of money. Since the removal of capital restrictions, however, the central bank has only been able to control, and even then only over a longer time horizon, the change in financial depth (that is, in the simplest case, the change in the ratio of narrow to broad money). However, it operationally adjusts the monetary stance by targeting the real interest rate[23].

The changes in the environment affecting the design of monetary policy are shown in Figure 7, while the corresponding impacts on operational targeting of monetary policy are illustrated in Figures 7 and 8.

Figure 7 shows the interest rate offered by domestic banks on short-term foreign exchange credits (in Euros) and average short-term interest rates offered by banks in Germany (for loans of up to 500,000 to one million euros). The scope for arbitrage following the abolition of capital restrictions in 1999 has virtually equalised domestic and foreign interest rates on comparable lending instruments (in foreign exchange) .

Figure 8
Interest rate ("small-real r") for short-term credits



Source: Bank of Slovenia Bulletin.

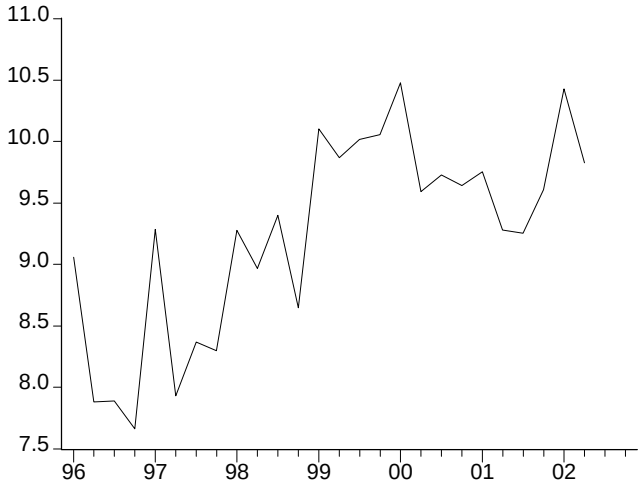
The change in the central bank's operational targeting is illustrated by Figure 8, which shows "small-real r" for lending rates on short-term (tolar-denominated) credits. The major shock to relative prices caused by changes in the tax

[23] See Bole (2003).

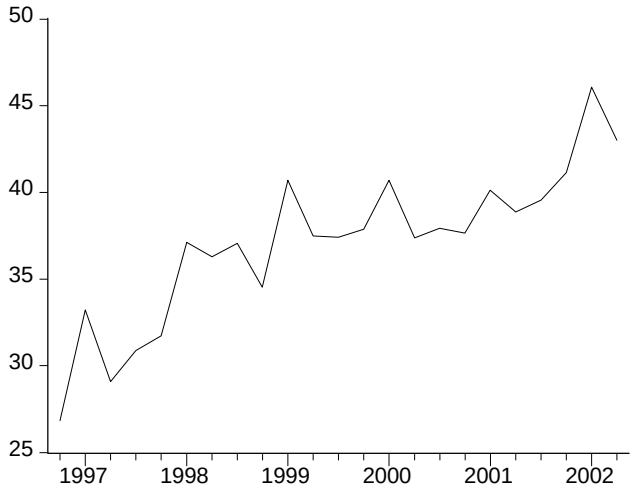
system, increases in tax rates and changes in (indirectly and directly) regulated prices and prices of producers with a large degree of market power, triggered an adjustment (and hence a rise) in all other prices. Figure 8 shows that, notwithstanding the increase in broad money (per unit of GDP), the central bank accordingly curtailed the loosening of monetary policy, since "small r" ceased to fall.

Figure 9

Narrow money (% of GDP)



Broad money (% of GDP)



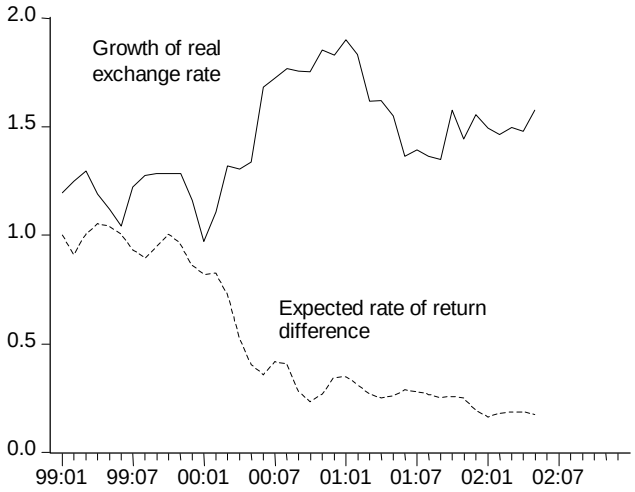
Source: Bank of Slovenia Bulletin; EIPF internal data.

Over the same period, i.e. after 1999, as the charts in Figure 9 show, large net financial inflows have increased the quantity of broad money per unit of GDP, while narrow money per unit of GDP has stood almost still (implying that financial deepening has started to occur).

The role of the exchange rate in the design of optimal monetary policy. In the period since 1999 large and relatively interest rate-insensitive financial inflows have strongly increased the supply of money through monetisation on the retail foreign exchange market. Through operational targeting of the real interest rate the central bank adjusts the restrictiveness of the monetary policy stance, that is the degree of restraint on domestic demand, with the ultimate objective of curbing the growth of prices in the non-tradable sector. On the basis of estimated (for the central bank given) inflation expectations the central bank must set nominal interest rates (on tolar-denominated instruments) at the right level in order to achieve an appropriately restrictive stance.

Since banks (domestic as well as foreign) also offer residents foreign exchange instruments (both lending and borrowing), the central bank must equalise expected (nominal) returns on foreign exchange and tolar-denominated instruments for the sake of instrumental consistency, as foreign exchange instruments would otherwise permit a different (lesser) degree of restrictiveness than tolar-denominated ones. In such a case the overall monetary policy stance would not be appropriate.

Figure 10
Control of the exchange rate
(Standard deviation of the growth in the real exchange rate and of expected rate of return difference)



Note: Standard deviations is calculated for a 12-month window; values are centred on the middle of the window.
Source: Monthly Bulletin of the Bank of Slovenia; own calculations.

Because, as illustrated earlier in Figure 7, interest rates on foreign exchange instruments of domestic banks (due to arbitrage) have been virtually identical to those on instruments offered by foreign banks since 1999 (at least on instruments that are comparable in other respects, such as maturity, collateral and other costs), the central

bank must control the (expected) movement of the exchange rate in such a way that it equalises the expected (nominal) returns on (comparable) tolar-denominated and foreign exchange instruments.

In 2002, for example, the (expected) depreciation of the exchange rate was slightly too slow relative to the monetary policy stance determined by tolar-denominated instruments and the level of (given) lending rates in the Euro zone, as the volume of foreign exchange borrowing grew faster than that of (comparable) tolar-denominated borrowing.

The considerable size of the impact of structural changes in the economy (the shock to relative prices and the total liberalisation of capital flows) on the design of monetary policy since 1999 is graphically illustrated in Figure 10, which graphs two series. The first is the standard deviation of the difference between expected monthly returns on tolar-denominated and foreign exchange short-term credit for a 12-month moving window[24]. In order to illustrate how unfounded is the view that the central bank targets the real exchange rate, the same figure shows the standard deviation of the growth in the real exchange rate, also for a 12-month moving window. For both series the standard deviation is centred on the middle of the relevant window; thus, the last data point for both series refers to the whole of 2002. To facilitate comparison, both standard deviations are normalised by the same factor, so that the value of the standard deviation of the difference in expected yields in the period 1999/01 is equal to one.

Both series graphed in Figure 10 confirm the change in the operational targeting of monetary policy that has occurred since 1999. The standard deviation of the difference in expected rates of return (between tolar-denominated and foreign exchange credits) has become more than four times as narrow as at the beginning of 1999. Such an outcome would have to be expected, heuristically speaking, if monetary policy had commenced operationally eliminating the difference in expected rates of return by means of the exchange rate! At the same time, however, the second series shows that the standard deviation of the growth in the real exchange rate has markedly increased since 1999, so that in 2002 it was already almost nine times as great as the standard deviation of the difference in expected returns!

Instrumental consistency, and thus a managed floating exchange rate that minimises the difference in expected rates of return on comparable tolar-denominated and foreign exchange instruments offered by banks, maintains an identical (selected) monetary policy stance on tolar-denominated and foreign exchange instruments. A managed floating exchange rate of this kind is also the only remaining "weapon" available to the central bank for preventing large-scale (short-term) speculative financial inflows from abroad. The central bank no longer concerns itself with the monetary effects of large, relatively interest rate-insensitive (longer-term) financial inflows, since these are automatically neutralised by an adequately restrictive

[24] In calculating the difference in expected yields, the expected increase in the exchange rate is approximated by the current increase.

monetary policy (with high enough real interest rates) through an increase in the depth of financial intermediation.

4. A possible alternative for the design of monetary policy

In the context of the design of monetary policy described above, the central bank can reduce nominal interest rates on tolar-denominated instruments, given an unchanged monetary policy stance, only if it assesses that inflation expectations (which are given from its point of view) have fallen; this probably occurred at the beginning of March 2003!

Since interest rates on foreign exchange instruments are given both for commercial banks and for the central bank due to arbitrage, the design of monetary policy by the central bank as described above has no degree of freedom for altering the path of the exchange rate independently of tolar interest rates. Thus, when the central bank sets the nominal interest rate (according to the desired monetary policy stance) on its tolar-denominated instruments (for example interest rates on swaps and 60-day central bank bills), it is not able to simultaneously bring about a "slightly slower" or "slightly faster" exchange rate movement. Because capital flows are free, the central bank can only maintain independent paths for money (interest rates) and the exchange rate by means of sterilised foreign exchange interventions (while keeping the costs of sterilisation to a tolerable level) for a very short time, if at all.

In the case where expected yields (costs) on banks' foreign exchange instruments are lower than the corresponding yields (costs) on tolar-denominated instruments, the actual monetary policy stance is less restrictive than that implied by the level of interest rates on tolar-denominated instruments. In order to maintain the monetary policy stance unchanged, therefore, the central bank must accelerate the (expected) path of the exchange rate (except, of course, where the ECB happens to "assist" by raising its interest rate appropriately). In the design of monetary policy described above, as already mentioned, exchange rate intervention is subordinated to interest rate-setting. Consequently, under this kind of monetary policy design, the central bank cannot step in to procure a "slightly slower" or "slightly faster" exchange rate movement, whatever its declared reasoning. Nor can the central bank announce (signal) the future path of the exchange rate. It can only signal that it will use the exchange rate to eliminate any difference in expected yields between tolar-denominated and foreign exchange instruments. As discussed, a (theoretically) optimal monetary policy must be aimed at stabilising prices in the non-tradable sector, which due to the uncompetitive market structure and/or government regulation are the basic cause of higher inflation and reduced efficiency of the economy, and over the long-term of lower sustainable economic growth.

Changes identified in inflation expectations (on the basis of which the central bank determines the monetary policy stance) must be reliable (confirmed by several indicators) and must be given (predetermined) for the central bank at the time of its decision. In the opposite case, that is where the central bank has ambitions to directly influence the formation of expectations (for example, by announcing future dynamics

of exchange rate), there is a serious danger of instrumental inconsistency and hence time-inconsistency of the policy in question.

An instrumentally consistent alternative policy, then, is not a "slightly slower" or "slightly faster" exchange rate movement but a transition to a significantly less flexible exchange rate regime (with a central parity and a narrow band) or even to a fully fixed exchange rate[25]; that is, to a monetary policy that anchors price growth by the exchange rate.

It is, however, possible to oppose such abrupt and premature change in economic policy already on the ground of classical argument about highly uncertain environment (triggered by structural changes in 1999 and 2000)[26]. The Bank of Slovenia is, namely, still learning about the economic structure and monetary transmission mechanism implications of those structural changes. Nevertheless, it is still necessary to evaluate "certainty equivalence" cost-benefit analysis of radical change in monetary policy.

While it is likely that the short-term benefits of a (premature) reorientation towards this kind of monetary policy would be significant, the corresponding longer-term costs would be even more so. Careful consideration should be given to certain important potential consequences of introducing this kind of alternative monetary policy prematurely[27].

After a fixing of the exchange rate the central bank would be unable to influence interest rates for a long time; nominal interest rates on tolar-denominated instruments would be equalised with those on comparable foreign exchange instruments offered by domestic banks (which in turn would be equal to interest rates on similar instruments abroad). The central bank would be unable to influence interest rates at least until such time as the deficit in current transactions grew to the volume of (relatively interest rate-insensitive) capital inflows, that is to the volume at which a reduction in the country's investment rating (due to a rapid increase in the deficit) would curb interest-rate sensitive inflows. Only then would the exogenously determined supply of money (generated by net monetisation on the retail foreign exchange market)cease. It must of course be added that the certainty and increasing imminence entry to the EU will drastically increase the opportunities for external financing, because of which any increase in the external imbalance will have a smaller impact on the country's rating, in other words its assessed solvency, and therefore also on financial inflows (financing) from abroad[28].

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[25] There are two key substantive features of a such regime, namely a central parity and a narrow band, and one technical one, namely automatic monetisation by the central bank on the wholesale forex market.

[26] See, for example, Brainard(1969) or Begg et al.(2002).

[27] The consequences outlined are robust to whether the exchange rate is fixed rigidly or within a band of fluctuation.

[28] This is well illustrated by the three developed transition economies, Poland, the Czech Republic and Hungary.

Since movements in exports are little affected by the exchange rate in the short term, imports, and thus domestic demand, would have to grow strongly for the resulting deficit in current transactions to reach the volume of net financial inflows in recent years (net financial inflows in the last two years were well in excess of 5% of GDP). The fall in nominal interest rates would stimulate consumer demand, first, via a wealth effect, since current household debt is considerably above normal. Despite a sizeable increase in domestic demand, inflation would probably fall, as growth in the price of tradables would ease. Because of differential price growth arising from the non-tradable sector, the real interest rate would be very low (lower than abroad), which would further stimulate growth in domestic demand. Strong growth in domestic demand, given a relatively small short-term effect on exports of the fixing of the exchange rate, would benefit overall economic growth.

On the other hand, a strengthening of domestic demand would allow micro-distortions in the non-tradable sector to be maintained and increased; the ability of the economy to achieve higher long-term sustainable growth would thus be reduced. This is because the relative price of services (non-tradables) would increase still further above the level appropriate to the level of economic development. Price distortions, that is the very argument for lower inflation, would therefore increase (and not decrease).

A lower rate of measured (overall) inflation would increase the moral hazard of the government for major hikes in prices that are under its control directly or indirectly, via regulators, since despite such hikes overall price growth would remain "acceptable" (thanks to the low rate of growth in the price of tradables), while there would still be significant pressure from lobbying interests (for example, monopoly enterprises) and a strong desire for an easy solution to the difficulties of state or quasi-state firms.

Increased domestic demand would increase tax revenue (particularly revenue from domestic taxes on goods and services, which is currently cyclically depressed). Because a fixing of the exchange rate would push down interest rates, there would also be some alleviation for public sector expenditure. In the short term the public finance position would be improved; it would therefore be even harder for the finance minister to shift the focus of public financial management away from questions of financing and toward questions of restructuring (curbing) expenditure; even in the short term it would be harder to convince spending ministers of the need to curb expenditure, public sector unions of the need to restrain wages, and parliament to change the law on transfers and certain taxes (for example personal or corporate income tax). In the longer term, it is likely that this effect of a premature transition to a significantly less flexible exchange rate regime would be the most dangerous, since it would prevent the public finance situation from being repaired in normal fashion (without a public financial crisis) while this is still possible[29].

[29] Although there are theoretical arguments in support of the view that a flexible exchange rate implies greater fiscal discipline, the only exception being credibility-dependent "currency boards" (See e.g. Tornell and Velasco (2000) and Fatas and Rose (2001)), the highly developed transition economies of the Czech Republic, Poland and Hungary are probably a better precedent for Slovenia during the EU accession phase. All three economies are

Heuristically it could be said that the effects of a premature transition from the current exchange rate regime to an alternative one characterised by a significantly less flexible or even fully fixed exchange rate would be very similar to the usual consequences of a transition from restructuring to financing of problems (in the economy). In the short term an alternative monetary policy orientation would probably be more successful and, in particular, more pleasant for consumers, firms (especially in the less efficient non-tradable sector) and policy-makers. What the effects of such a premature change in economic (monetary) policy would be over the slightly longer term, once restructuring became inevitable, is of course quite a different matter.

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characterised by a lower rate of price growth than Slovenia, especially the first two, while at the same time they also have (in addition to a large external imbalance) a public financial deficit that is several times as large; for example, 8% of GDP in the Czech Republic (estimate for 2002, Transition Report Update, EBRD, May 2002) and 9.7% GDP in Hungary (estimate for 2002, JP Morgan Data Watch, 10 January 2003).

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